METHOD AND APPARATUS FOR USE
OF ASSOCIATED MEMORY WITH LARGE KEY SETS

ABSTRACT

To provide fast access times with very large key fields, an associative memory utilizes a location addressable memory and lookup table to generate from a key the address in memory storing an associated record. The

5   lookup tables, stored in memory, are constructed with the aid of arithmetic data compression methods to create a near perfect hashing of the keys. For encoding into the lookup table, keys are divided into a string of symbols. Each valid and invalid symbol is assigned an index value, such

10   that the sum of valid index values for symbols of a particular key is a unique value that is used as an address to the memory storing the record associated with that key, and the sum of keys containing invalid index values point to a location in memory containing similar data. Utilizing

15   the lookup tables set and relational operations maybe carried out that provide a user with a maximum number of key records resulting from a sequence of intersection, union and mask operations.

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